Feature

Teaching Remote Sensing on the Web

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The Remote Sensing Tutorial is an over-100-page, World Wide Web (WWW), college-level tutorial produced by Nick Short, Sr. (retired) and Jon Robinson of Hughes STX. The tutorial is sponsored by the Applied Information Science Branch of Goddard Space Flight Center's Earth and Space Data Computing Division. The tutorial explains how remote sensing is applied in studying the environments of Earth as well as the role of space technology in monitoring Earth's surface and atmosphere. The tutorial describes past uses of aerial photography and space imagery as records of Earth's geography as well as future plans for more-advanced monitoring systems. Through the tutorial, you develop skills in interpreting and analyzing satellite images and aerial photographs by direct inspection and computer processing.

Using the WWW

The project began as *The Landsat Tutorial Workbook: Basics of Satellite Remote Sensing,* written by Nick Short, Sr. in 1982 (NASA Ref. Publication 1078). Short and Robinson have been collaborating for almost two years to post the contents of the workbook to the WWW in a manner that takes advantage of the WWW's interactivity. Posting the workbook to the Internet is cost-effective for NASA, because the site contains many color-intensive graphics that would be expensive to reproduce in print. The authors consider the WWW tutorial to be a living, organic document that will grow and change as remote sensing technology evolves, and as ways of presenting information on the WWW improve.

The Remote Sensing Tutorial instructs through a series of short sections, each focused on one or more relevant topics. These sections are accompanied by discussions and progress into hands-on interactive instruction. Each section concentrates on a local or regional area or on a topical theme. Several "standard" space images are usually the focal points of a section, with computer-based processing renditions, ground photos, and descriptive maps providing added details where appropriate.

About the tutorial

The tutorial begins by introducing the principles of physics (especially electromagnetic radiation) underlying remote sensing, then considers the main kinds of observing platforms in use, and closes with a recounting of the history of satellite systems with an accent on LANDSAT.

The first section introduces most of the major concepts behind image analysis and interpretation by "walking" you through product types and processing output in common use. The next eight sections treat specific applications and introduce SPOT, the French satellite system. Section Nine examines in depth what scientists have learned about these fascinating worlds—planets, satellites, and asteroids. A survey of basic ideas underlying astronomy and cosmology is also in this section.

A comprehensive summary (soon to be online) of the main achievements in the exploration of the Solar System is offered in Section 19, "Planetary Remote Sensing."

The tutorial includes links to relevant sources of information on remote sensing, including federal and international programs as well as educational and commercial organizations that provide training and services.

To present elaborate instruction suitable for the topic of remote sensing, the site includes large and color-intensive graphics that are designed for loading with higher-end bandwidth Internet connections. Although the pictures are an integral part of the tutorial, users with lower-end bandwidth can choose not to load the pictures, and they will still benefit from the instructional text. Users from

"The Remote Sensing Tutorial helps make NASA data understandable and accessible to the public, whose tax dollars have paid for NASA's remote sensing research since the early 1970's,"
— Jon Robinson, Hughes STX

other countries have requested mirror sites to speed download.

Browser statistics

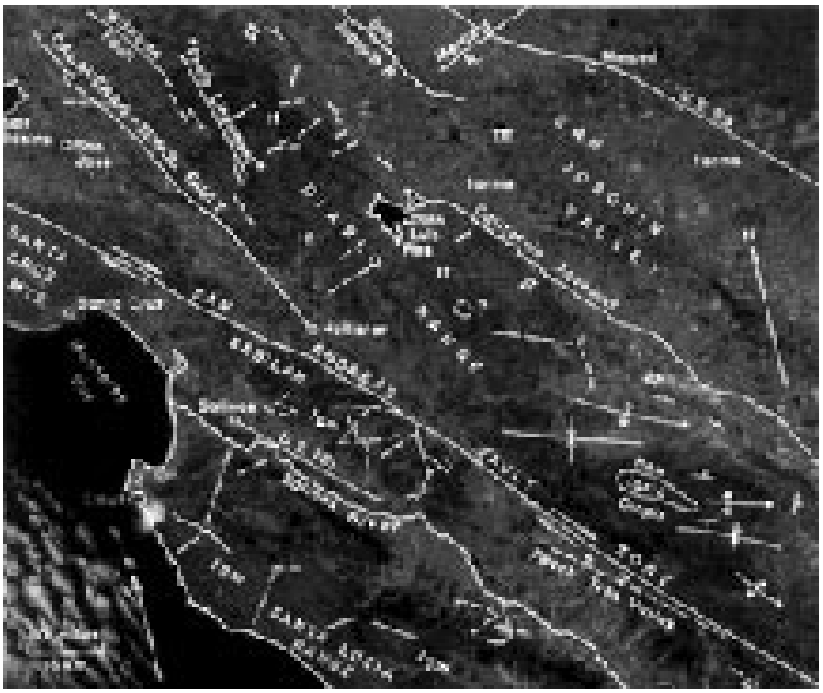
According to browser statistics, this heavily accessed site has had traffic from over 50 countries, including Croatia, Colombia, Indonesia, Malta, France, Russian Federation, Israel, S. Africa, and S. Korea, as well as from numerous nonprofit institutions. Fifteen percent of the bytes used were from educational institutions.

For further information on the Remote Sensing Tutorial contact Jon Robinson at:

301-286-0681

To view the tutorial on the WWW access:

http://code935.gsfc.nasa.gov/IIFS-html/LT/NewTutorial/intro1.html



Paul D.Lowman, Jr, a geologist at Goddard Space Flight Center and expert on space photography, drew this geologic- structures map on the inaugural color composite image of the central California coast around Monterey Bay, acquired 3 days after the launch of ERTS-1 (Landsat-1).